National Institute of Environmental Health Sciences

Climate change and human health: A One Health approach

Author(s):	Patz JA, Hahn MB
Book:	One Health: The Human-Animal-Environment Interfaces in Emerging Infectious Diseases: Food Safety and Security, and International and National Plans for Implementation of One Health Activities
Year:	2013
Series:	Current Topics in Microbiology and Immunology, 366
Publisher:	Springer-Verlag Berlin (Berlin, Germany)

Abstract:

Climate change adds complexity and uncertainty to human health issues such as emerging infectious diseases, food security, and national sustainability planning that intensify the importance of interdisciplinary and collaborative research. Collaboration between veterinary, medical, and public health professionals to understand the ecological interactions and reactions to flux in a system can facilitate clearer understanding of climate change impacts on environmental, animal, and human health. Here we present a brief introduction to climate science and projections for the next century and a review of current knowledge on the impacts of climate-driven environmental change on human health. We then turn to the links between ecological and evolutionary responses to climate change and health. The literature on climate impacts on biological systems is rich in both content and historical data, but the connections between these changes and human health is less understood. We discuss five mechanisms by which climate changes impacts on biological systems will be felt by the human population: Modifications in Vector, Reservoir, and Pathogen Lifecycles; Diseases of Domestic and Wild Animals and Plants; Disruption of Synchrony Between Interacting Species; Trophic Cascades; and Alteration or Destruction of Habitat. Each species responds to environmental changes differently, and in order to predict the movement of disease through ecosystems, we have to rely on expertise from the fields of veterinary, medical, and public health, and these health professionals must take into account the dynamic nature of ecosystems in a changing climate.

Source: http://link.springer.com/chapter/10.1007%2F82_2012_274

Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Health Professional, Policymaker, Researcher

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Quality, Food/Water Security

Food/Water Quality: Pathogen

Food/Water Security: Agricultural Productivity, Livestock Productivity

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

General Health Impact, Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease, Zoonotic Disease

Foodborne/Waterborne Disease: E. coli

Zoonotic Disease: Other Zoonotic Disease

Zoonotic Disease (other): Bovine spongiform encephalopathy

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Medical Community Engagement:

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Review

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content